DOCUMENT RESUME

ED 481 550 EC 309 857

AUTHOR Carbonell, Claudia L.

TITLE Attention Deficit Hyperactive Disorder: Alternative Treatment Plans for School Age Children Diagnosed with ADHD.

PUB DATE 2003-05-00

NOTE 32p.

PUB TYPE Information Analyses (070)

EDRS PRICE EDRS Price MF01/PC02 Plus Postage.

DESCRIPTORS *Attention Deficit Disorders; *Clinical Diagnosis; *Definitions; Drug Therapy; Educational Therapy; Elementary Secondary Education; *Hyperactivity; Outcomes of Treatment; *Symptoms (Individual Disorders)

ABSTRACT

This literature review of attention deficit hyperactivity disorder (ADHD) reviews the diagnosis and treatment options for children diagnosed with ADHD. It describes the complexity of ADHD, its symptoms, treatments, and implications on a child's social and academic development as well as strategies for assisting such children. Individual sections address the following topics: definitions of ADHD; diagnosis; treatment and medication; educational implications; and research limitations. Treatment options discussed include drug therapy, neurotherapy, hypnosis and cognitive-behavioral therapy, holistic approaches, parent education, and behavioral treatment. The paper concludes that, although diagnosis and treatment options vary, the following points are consistently made throughout the literature: (1) parents, educators, and evaluators need to be informed about ADHD and its subtypes; (2) qualified professionals should conduct all diagnoses and the methodologies used should be consistent with current research; (3) medication is an increasingly common form of treatment that should be handled delicately; and (4) alternative treatment programs and support groups are also available to control ADHD symptoms. (Contains 14 references.) (DB)

Reproductions supplied by EDRS are the best that can be made from the original document.

EC ECTR 0099

ED 481 550

Attention Deficit Hyperactive Disorder: Alternative Treatment Plans for School Age Children Diagnosed with ADHD

Claudia L. Carbonell

Division of Education

School of Business, Education, and Leadership

Dominican University of California

San Rafael, CA

May, 2003

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☒ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

C. L. Carbonell

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

1

EC 309857

BEST COPY AVAILABLE

Abstract

Attention deficit hyperactive disorder (ADHD) has been estimated to occur in 3% to 5% of school age children with over 50% of clinic-referred children diagnosed as ADHD (NIH, 1998). Most of these children are treated with high doses of medication in the form of psychostimulants, including amphetamine, methylphenidate, and pemoline. This literature review describes the complexity of ADHD, its symptoms, treatments, and implications on a child's social and academic development. This review of the literature provides readers with strategies for assisting children with ADHD to better access curriculum, interact socially, and build strong coping strategies.

Acknowledgements

I would like to acknowledge my professors, Dr. Madalienne Peters and Dr. Suresh Appavoo who guided me through the research process and inspired me to achieve success. I would also like to recognize the reference librarians at Dominican University of California for their continued support in gathering data and other related information.

Thank you to the many children I have taught, who struggle with Attention Deficit Hyperactive Disorder (ADHD) each day, for encouraging me to find successful methods of instruction and strategies for developing appropriate learning environments. I am also grateful to the readers of this paper that have found a reason to be passionate about the difficulties students with ADHD face and recognize the need to look for research that supports their attempts to make learning accessible and enjoyable.

Without the flexibility and support of my principal, Julie Harris, researching this topic while teaching full time would not have been possible. I am grateful for her patience and understanding, as I have attempted to work with ADHD students, their families, and our district professionals to develop the most appropriate medical, academic, and social interventions.

Most importantly I would like to express my sincere appreciation to my mother, Gay Matthes, for her ongoing devotion to help her child cope with ADHD. My mother's resistance to medical treatments at an early age and her dedication to exploring alternative strategies enabled me to embrace my strengths as a young student with ADHD, build on my potential, and to discover how living with

ADHD can be an empowering tool as an educator. My step-mother, Callie McMillan, who co-raised me, also created a well defined lifestyle and an appropriately structured home life. This helped me to develop strong study skills and to learn the importance of extending coping mechanisms for ADHD children outside the classroom environment.

Table of Contents

Title Page 1

Acknowledgements 2

Table of Contents 4

Abstract 5

Introduction 6

Review of the Literature 6

ADHD Defined 7

Diagnosis 8

Treatment and Medication 12

Educational Implications 22

Research Limitations 25

Conclusion 27

References 30

Introduction

Classrooms across the country are comprised of children with varying activity levels and abilities to pay attention to lessons. Teachers are well trained in designing lessons, developing curriculum, structuring schedules, and organizing classrooms to meet the needs of their diverse students. Some students, however, go beyond the usual range of their coping strategies and may need additional support from the teacher. Behavior problems and learning issues may compromise the educational development of these students. When impulsivity, hyperactive behaviors, and problems with attention become so severe that children are unable to access the curriculum, build strong, friendships, or live comfortably in their home environment, they may be diagnosed with Attention Deficit Hyperactive Disorder (ADHD).

Information from medical journals, parent magazines, and educational workshops discuss the identification and management of children with ADHD. However, readers find discrepancies and confusion regarding the associated behaviors, diagnosis, and treatment of ADHD. This review of the literature summarizes current information regarding the diagnosis and treatment options for children diagnosed with ADHD.

Review of the Literature

Literature exists examining the many perspectives on the topic of attention deficit hyperactive disorder (ADHD). Medical professionals, educators, and parents have been addressing the academic and social impact ADHD has on

school-age children for many years. Unfortunately, a clear consensus as to the implications of this disorder has yet to be established. The following information relates the biological and psycho-social research of ADHD to better inform readers about best practices for diagnosis, treatment, and the impact on education.

ADHD Defined

Attention deficit hyperactive disorder (ADHD) is a behavioral disorder affecting 3% to 5% of all school-age children, approximately 2 million total, and is characterized by developmentally inappropriate levels of inattention, hyperactivity, and impulsivity (American Psychiatric Association, 1994). Children with ADHD experience difficulties in home settings, at school, and with peer relationships. Academic performance, vocational success, and social-emotional development also appear to be affected (NIH, 1998). Fifty to eighty percent of children referred for ADHD will continue to have symptoms into their adolescence years. More boys than girls are being diagnosed with ADHD at a 3:1 to 6:1 ratio. This may be due to the observations that boys have a higher tendency to show hyperactive and aggressive behaviors, thus being referred for evaluations more frequently than girls (Brown, 2000).

Researchers have proposed a variety of causal factors. Neurological, hereditary, pre- and postnatal factors, and toxic influence can all lead to the development of ADHD. For example, it has been estimated that 40% of children with ADHD have a parent with the trait, and 35% share the disorder with a

sibling, suggesting a strong genetic factor (Grantham, 1999). Environmental factors, such as poor parenting and ineffective educational practices, have not been known to cause ADHD, but could exacerbate the symptoms (Barkley, 1990; Brown 2000). This suggests that increased parent education and appropriate school environments may assist children in coping with ADHD.

Diagnosis

While ADHD is not a new disorder its diagnosis is becoming more common within the school age population. Researchers have dated the beginnings of behavioral diagnosis back to the work of Still and Meyer in 1902, researchers who examined the relationship of brain trauma to inappropriate behaviors (Grantham, 1999). Experiments and observations continued on into the 1990's. After undergoing many transitions, the disorder is now known to have a focus on both inattention and hyperactivity. Technological tools have been used to show that ADHD is neurologically based and is a genetically and biologically transmitted disorder. As stated by Barkley, ADHD is a developmental failure in the "brain circuitry that underlies inhibition and self control...which impairs other important brain functions crucial for maintaining attention, including immediate rewards for later, greater gain" (Grantham, 1999, p.6).

Because there is no true test for ADHD, proper diagnosis depends greatly on thorough assessments and observations. Many children are hastily assessed, diagnosed, and treated for ADHD without undergoing the extensive multiple methods of observations suggested by Brown (2000). This has lead to

controversial thoughts that ADHD is over diagnosed and that children with ADHD are overmedicated. While a range of treatment options do exist, some researchers express concern that many children are prescribed stimulant medications rapidly and at higher doses than perhaps necessary. Brown explains "systematic, comprehensive evaluation will lead to more accurate diagnosis and more appropriate use of stimulant medication" (Brown, 2000, p.12). The method for diagnosis of ADHD is outlined in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV, 1994). Tables A and B show the inattention and hyperactivity-impulsivity clusters, each including nine symptoms, identified in the DSM-IV. Children must exhibit at least six behaviors within a cluster before the age of seven and for a minimum of six months to be diagnosed as inattentive or hyperactive-impulsive (Brown, 2000).

Table A – Diagnostic Criteria for Attention Deficit Hyperactive Disorder--Inattention

1. Often fails to give close attention to details or makes careless mistakes in schoolwork, work on other activities.
2. Often has difficulty sustaining attention in tasks or play activities.
3. Often does not seem to listen when spoken to directly.
4. Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the work place (not due to oppositional behavior or failure to understand directions).
5. Often has difficulty organizing tasks or activities.
6. Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework).
7. Often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools).
8. Is often easily distracted by extraneous stimuli.
9. Is often forgetful in daily activities.

Table B – Diagnostic Criteria for Attention Deficit Hyperactive Disorder—Hyperactivity-Impulsivity

1. Often fidgets with hands or feet or squirms in seat
2. Often leaves seat in classroom or in other situations in which remaining seated is expected.

3. Often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness).
4. Often has difficulty playing or engaging in leisure activities quietly.
5. Is often "on the go" or often acts as if "driven by a motor".
6. Often talks excessively.
7. Often blurts out answers before questions have been completed.
8. Often has difficulty awaiting turns.
9. Often interrupts or intrudes on others (e.g., butts into conversations or games).

Note: From American Psychiatric Association. (1994). Diagnostic and Statistical Manual of Mental Disorders (4th ed., p. 84).

Student responses to these diagnostic lists are based on teacher and parent observations and are therefore subjective in nature. Individual experiences, knowledge about ADHD, and levels of tolerance for childlike behaviors can all be factors in determining the answers to many surveys. This could be a possible cause for the increase in referrals of children appearing to possess ADHD symptoms. In order to minimize excessive referrals, evaluators must use multiple methods for diagnosis. Increased accuracy in diagnosis may help identify specific issues and lead to appropriate treatment plans.

Brown explains how the presence of one or both inattention and hyperactivity-impulsivity factors lead to three subtypes of ADHD. ADHD-I is a predominantly inattentive-type, and is also known as "attention deficit disorder without hyperactivity." ADHD-C is a combined type and includes both inattention and hyperactivity-impulsivity factors. This is the most common subtype of ADHD. ADHD-HI is a newer subtype with less empirical support. It characterizes children with dominant hyperactive-impulsivity features and is seen mostly in preschoolers. ADHD-HI is often an indicator that children will be likely to exhibit

more symptoms of ADHD-C in later years (Brown, 2000). Interested parties need to understand the characteristics of ADHD and be able to identify each subtype to ensure children are assessed and treated properly.

Methods of assessment for ADHD vary and each form has its own strengths and weaknesses. By using multiple methods of assessment and collecting sources of information across settings, observers are likely to reduce limitations and make the increasingly accurate diagnoses. Brown (2000) notes some of the more common methods for assessing ADHD. Clinical interviews are widely used and are considered to be very reliable. They are developed based on diagnostic criteria and cover a broad range of topics.

Child interviews are especially helpful when the children are ten years of age or older. Data are more reliable when children report about their feelings and moods, internal symptoms, compared to behavior patterns, external symptoms. Parents are also a source of information offering a description of their child's behavior. Counselors should be cautious, however, of possible influences from a family's high stress level when conducting family interviews. Teacher interviews are a common way to obtain information about a child's behavioral symptoms, social behavior, and academic performance (Brown, 2000).

Because interviews tend to be subjective nature, evaluators use behavior-rating scales as important sources of reliable data when diagnosing ADHD. Different rating scales may be used depending on the observational scenario and behavior patterns being monitored. For example, initial screening uses broad

band scales to gather general information about behavior constructs. Using narrow-band scales collects specific data about inattention, impulsivity, and hyperactivity.

It is also worth noting Brown's explanation that "diagnosis is complicated in that behaviors that are symptomatic of ADHD are also likely to occur in normal children during the course of development and may also occur as symptoms of problems other than ADHD. The likelihood of comorbid disorders being present is relatively high, and the assessment should also address the identification of other disorders" (Brown, 2000, p. 4).

While diagnostic tools are the method for determining ADHD, brain scans show peculiarities in about 70% of children diagnosed with ADHD. With this knowledge, researchers are looking to conduct more studies in the areas of neurology and genetics (Grantham, 1999). Continued research in these areas will help guide the assessment and treatment process.

Treatment and Medication

Some doctors prescribe medication based on teacher and parent input and look at the child's response to the medication as criteria for evaluation. This method lacks validity because most of the child's responses are interpreted by the caregivers, not the physician and possible coexisting disorders may be overlooked (Ardorin & Martins, 1999). Making quick decisions to medicate may keep involved parties from exploring more educationally relevant interventions (Macrine & Chapman, 2001).

Currently 1.29 million children are taking some form of psychostimulants for ADHD. Therefore, it is important to examine the current data regarding medical treatment. Stimulant medication is the common choice of treatment for ADHD. This is probably because studies show 75% of children with ADHD respond positively to Ritalin (Halls & Gushee, 2002). It is thought that psychostimulants, such as Ritalin, improve thought quality and help children develop behaviors appropriate to school and social settings. This effectiveness is a direct result of stimulants creating neuro-chemical changes in the brain's neurotransmitter action sites. These are the areas believed to be responsible for symptoms most often associated with ADHD. A neurotransmitter deficiency in the Central Nervous System seems to indicate a lower production of Dopamine and Norepinephrine in ADHD children. Therefore, stimulant medication increases such production and improves motor processing, related to Dopamine levels, and sensory processing, related to Norepinephrine (Tillery, Katz, Jack, & Warren, 2000).

A worthwhile concern regarding ADHD is the use of such psychostimulants to treat the disorder. Amphetamine, methylphenidate, and pemoline are increasingly prescribed and are raising concerns about overuse and abuse (NIH, 1998). Because of the increase in the number of prescription medications, behavior analysts are evaluating medication effects and identifying the lowest therapeutic dose that produces the maximum therapeutic gain for children (Ardorin & Martens, 2000).

Research exists that this traditional form of treatment needs to be studied further. Methylphenidate, often known as Ritalin, has been prescribed seven times more often in the last eight years. Ninety per cent of the world's Ritalin consumption occurs in the United States. The National Institute of Mental Health (NIMH) submitted a report regarding the use of Ritalin…

1. Ritalin clearly works in the short term for reduction of ADHD symptoms.
2. More studies are needed on the long-term effects of Ritalin on academic or social performance.
3. Ritalin may stifle appetite and delay growth in some children.
4. A positive response to Ritalin does not automatically indicate ADHD. Stimulants can sharpen anyone's focus.
5. Ritalin is not a panacea. It won't boost IQ or take away learning disabilities that affect 15% of children with ADHD.
6. Preliminary evidence suggests that the brains of children with ADHD differ from their peers. Researchers are not sure if this is due to normal variation or is truly biochemical.

(Grantham, 1999. p.15)

Researchers acknowledge the positive results achieved by the use of stimulant medication but stress the importance of "additional intervention directed to building requisite academic and social behavior" (Brown, 2000, p. 6). There appears to be agreement that high doses of such medications are not necessary when additional treatment methods, such as counseling and behavior intervention plans, are implemented as well.

While studies, which evaluated the possibility for long-term harmful effects of psychostimulants, are inconclusive, moderate doses of such medications may cause a decrease in appetite and insomnia. Effects of using higher doses of stimulant medication range from potential abuse to damage to the central nervous system. It is also unclear if the correlation of substance abuse later in

life is related to the disorder itself or the overuse of stimulant medication (NIH, 1998). "Not all children with ADHD need to take medication and the decision to use it depends on the severity of symptoms; the coping abilities of the child, the parent, and the school; and the availability and success of other interventions (Brown, 2002, p. 6)."

Another medicinal option for the treatment of ADHD is Tricyclic Antidepressants (TCA). These are used as an alternative for children who do not respond to stimulant medication or for those concerned with the side effects associated with stimulants. TCAs work by increasing the supply of the neurotransmitters norepinephrine and serotonin and 93% of related studies indicate a moderate improvement for ADHD symptoms. Advantages of prescribing TCAs over stimulants include a longer half-life, fewer associated anxiety and depression symptoms, and a decrease in hyperactivity and impulsivity tendencies. While TCAs appear to help control ADHD and comorbid disorders, such as motor and verbal tics, intake needs to be carefully monitored to reduce possible side effects. Such effects range from low blood pressure and dry mouth to constipation and dizziness. Cardiovascular, cardiac, and hypertension are also risks of taking TCAs. Most importantly, intentional or accidental overdose is of highest concern, especially with the desipramine form. Seven deaths have been reported from children overdosing on TCAs. Parents interested in TCAs need to research these effects, their child's history, and consult with professionals extensively before opting for this kind of treatment (Hall & Gushee, 2002) .

As mentioned, researchers express concerns regarding stimulants and other medicines as primary treatments for ADHD. Behavior modification plans or cognitive-behavioral therapy reduces these concerns but has yet to show long lasting effects. There is also a believed limitation in trained behaviors to be carried over from a classroom setting to new situations. Thus, neurotherapy is proposed as an alternative habilitative treatment for ADHD (Anderson, Barabasz M., Barabsz A., & Warner, 200).

Neurotherapy attempts to normalize brain wave patterns without the use of drugs or behavior modifications. It is thought that feedback training will decrease the EEG theta waves, associated with distracted minds, and increase the EEG beta waves, responsible for focused learning (Anderson et al, 2000.)

Two brain wave patterns appear to be effected by neurofeedback, a) changing the firing rate of thalamic pacemakers, and b) enhancing frontal lobe function). The thalamus produces moderators, or pacemakers, that create varying brain rhythms by activating different communication loops within the brain. These are called cortical resonance loops. The firing rate and patterns of these thalamic pacemakers are changed by learning, emotion, motivation, or neurofeedback, thus activating different cortical resonance loops and changes in EEG waves (Anderson et al., 2000).

Frontal lobe dysfunction is believed to be a second area of concern in ADHD children. "The executive nature of frontal lobe functions is critical in inhibiting attentional focus to irrelevant stimuli and mobilizing inhibitory behaviors (Anderson et al., 2000, p. 3). It is hypothesized that neurofeedback enhances

executive functions of the frontal lobe and organizes attention. This process appears to be successful but can take up to 80 sessions. Researchers have found that neurotherapy in conjunction with hypnosis can significantly reduce the time required.

Many therapeutic interventions have been accompanied by hypnosis. Researchers found that "70% of patients exposed to a combination of hypnosis and cognitive-behavioral therapy had significantly greater improvement than those patients exposed to the identical cognitive-behavioral therapy techniques without hypnosis" (Anderson et al., 2000, p. 4). It is noted that hypnosis involves attentional processes and enhances specific functions. For example, Anderson sites how Barabasz found that "alert hypnosis improved military pilots' flight reliability through greater situational awareness with regard to cockpit navigation cues" (Anderson et al., 2000, p.4). This kind of information prompted researchers to examine the use of alert hypnosis with attentional instructions to expedite the normalization in response to neurofeedback, thus directly impacting ADHD symptoms.

The researchers compared two cases. "Mike" received neurotherapy treatment for ADHD. "Juan" received neurotherapy plus alert hypnosis treatment for more severe symptoms. These cases were matched based on same gender, hypnotizability scores, similar age, and closeness on IQ exams. They found Juan required only 32 sessions, while Mike required 67 sessions to indicate significant beta-theta normalization. These findings prompted Anderson et al. to conduct more extensive studies whereby they concluded that the length of

therapy could be reduced with the adjunct of hypnosis. This is important for lowering cost for patients, eliminating or reducing medication, and removing behavior modification plans. The researchers believe neurotherapy to be promising addition to therapists lists of techniques for treating ADHD (Anderson et. al., 2000)

A holistic approach to ADHD provides teachers and parents with an option intended to in an activities-based, self-paced, and hands-on manner. Components of such an approach include 1) visualization strategies, 2) project-based activities, and 3) hypertext and multimedia dimensions. The application of Gardner's theory of multiple intelligences and the development of appropriate assessment strategies would focus on the child's inner capabilities (Armstrong, 1996).

Armstrong provides some specific interventions to be used at home and at school that are thought to replace medication and behavior modifications to better reflect the child's true nature...

> *Cognitive. Use focusing and attention training techniques (for example, meditation and visualization), self-talk skills, biofeedback training, organizational strategies, attributional skills (including the ability to attribute success to personal effort), and higher-order problem solving.
> *Ecological. Limit television and video games, provide appropriate spaces for learning, use music and art to calm or stimulate, find a child's best times of alertness, provide a balanced breakfast, and remove allergens from the diet.
> *Physical. Emphasize a strong physical education program, martial arts training, use of physical touch and appropriate movement, outdoor activities, noncompetitive sports and games, and physical relaxation techniques.
> *Emotional. Use self-esteem building strategies; provide positive role models and positive images of the future; employ values clarification; offer individual psychotherapy; and identify talents, strengths, and abilities.

*Behavioral. Use personal contracting; immediate feedback; natural and logical consequences; and consistent rules, routines, and transitions. Involve the child in a selection of strategies.
*Social. Stress effective communication skills, social skills, class meetings, family therapy, peer and cross-age tutoring, and cooperative learning.
*Educational. Use computers; hands-on learning; high-stimulation learning resources; expressive arts; creativity development; and multiple intelligences, whole language, and attention-grabbing activities.
(Armstrong, 1996, p. 4).

The Multimodal Treatment Study of Children with ADHD (MTA Cooperative Group, 1999a) details the success of various treatment plans. It compared medication (MED), behavioral treatment (BEH), combined treatment (COMB), and routine community care (CC). Six dependent variables were measured: a) ADHD symptoms, b) aggression-oppositional defiant disorder, c) internalizing symptoms, d) social skills, e) parent-child relations, and f) academic achievement. Participants included a heterogeneous group of 579 children between 7 and 9 years of age, 80% of whom were males. The children were randomly assigned for 14 months to the four possible treatment groups at six different sites in the United States and Canada. They had all been diagnosed with ADHD combined type. The three most prevalent comorbid disorders were oppositional defiant disorder, anxiety disorder, and conduct disorder.

The treatment groups were designed as follows. The BEH group implemented parent training, school-based intervention, and a summer treatment program. The MED group was closely monitored and given Ritalin three times a day for 28 days. The COMB group received behavioral and medical treatments. The CC group was referred to community mental health resources, where about 67% of them were prescribed medication.

Results of the study indicate significant benefits of the COMB and MED groups compared the CC group. The COMB group showed superior results compared to the MED group and those children required less medication than those in the MED group alone (Edwards 2002).

The Multi-component Treatment Approach, outlined by Edwards (2002), involves 4 major components: 1) Parent Management Training, 2) School Interventions, 3) Medication, and 4) Summer Intervention Program. It is believed that such an approach is the most comprehensive and beneficial way to manage a child with ADHD. The following details can be adequately adapted and integrated into individual plans to best meet the needs of children faced with ADHD.

1) Parent Management Training (PMT) - This component educates parents to assist them in managing their child's behavioral issues. The PMT involves six basic concepts: immediate consequences, specific consequences, consistent consequences, incentive programs, plans for misbehavior, and reciprocal family interactions. This behaviorally oriented approach is detailed in Barkley's (1997b) treatment manual.
2) School Interventions – While many possibilities do exist, some strong recommendations are made for schools. Regular parent-teacher collaboration, a daily school-home behavior report card, and academic adjustments are top priorities. Special education laws, such as the Individuals with Disabilities Act and the Section 504 of the Rehabilitation Act, provide special services for students who qualify. Students

diagnosed as ADHD do not always meet the requirements for such services, but it is an important consideration for more serious circumstances. Possible areas of concern that many enable a student to be a part of the special education program include a) other health impairments, b) specific learning disabilities, and c) serious emotional disturbance.

3) Medication - Edwards (2002) recognizes the controversy regarding medical interventions but notes the success associated with psycho-stimulant use in addressing the core symptoms of ADHD. He recommends that qualified health professionals evaluate and treat children with ADHD. Parents need to be well educated about treatment options. A care management system needs to be in place before stimulants are administered.

4) Summer Intervention Program – While some children experiencing ADHD are unable to attend summer programs, there are three aspects that can be applied to all children receiving treatment. First, children diagnosed with ADHD can be paired together to foster friendship. This is an attempt to address peer relationship difficulties associated with ADHD and may be facilitated with social-skills training. Secondly, learning how to follow game rules, improve motor skills, and build self-esteem are targeted goals in the sports-skills training aspect of this program. Finally, behavioral intervention, implementing the use of point systems and time outs, is as

important component that helps children with ADHD understand limits and develop self-control.

Edwards points out that the MTA study fails to consider other aspects of a multicomponent approach. Support groups for families can be helpful in assisting with the stress and anxiety that is often present when parenting a child with ADHD. Many communities host chapters of a national organization, called Children and Adults with Attention Deficit Disorder (C.H.A.D.D.).

Educational books for family members are also recommended. Edwards sites authors Barkley, *Taking Charge of ADHD: The complete authoritative guide for parents*, and Gordon, *Jumpin' Johnny get back to work!: A child's guide to ADHD/hyperactivity* and *My brother's a world-class pain: A sibling's guide to ADHD/hyperactivity*, as helpful references.

Counseling from experts in the field of ADHD seems to be another way to help children and families to understand and cope effectively. Other treatments, i.e. dietary regiments and chiropractic therapy, may be options for some families but Edwards indicates little empirical evidence exists for their success. Qualified counselors should be able to suggest evidenced-based treatment particular to a child's individual needs (Edwards, 2002).

Educational Implications

Based on the information obtained it seems crucial for administrators and educators to be fully knowledgeable and aware of all the options prior to referring a student displaying symptoms of ADHD. Teachers should also be well informed

about the environments and teaching practices most conducive for children with ADHD.

Diagnosis: It is apparent that most researchers agree the best approach for assessing children showing signs of ADHD is a combination of methods. The process should include a complete developmental history, medical history, classroom/home observations, traditional standardized tools, and referral to medical and behavioral specialists (Brown, 2000; Grantham, 1999).

Treatments: Evidence suggests the use of stimulant medications, especially methylphenidate, Ritalin, improves symptoms in children with ADHD. However, many researchers are in agreement that the use of stimulants alone is not the most successful method of treatment. Rather, a multimodal treatment approach combining medication, behavioral intervention, counseling, and educational assistance is the best plan (Tillery, Katz, & Keller, 2000).

Successful models of identifying children with ADHD and providing them with appropriate treatment plans are in place. Resources can provide educators with tools and a knowledge base to develop guidelines and procedures that will best accommodate the needs of students with ADHD. Websites, created by researchers, can educate parents and teachers about the best practices associated with assessing and treating ADHD. As statistics suggest, the number of students in schools diagnosed and treated for ADHD is multiplying drastically. Therefore, it should be a priority for districts to have a plan of action in place for current students already diagnosed with ADHD as well as for those who may develop symptoms.

One model, created by Glenn Yelich for a New York school district presents a multi-modal diagnostic procedure. There are six components to this assessment process:

1. A thorough review of the child's school records.
2. A complete developmental questionnaire and social-history form completed by the parent.
3. A review of medical records, a general measure of cognition, and an interview with the child.
4. A series of four behavioral observations of the child in various settings.
5. Completion of the Attention Deficit Disorders Evaluation Scale
6. Completion of the "Components of ADHD Assessment Summary Sheet."

(Yelich, 2001. p. 5-9).

As an alternative to medications, Roe, (1998) developed a booklet describing ADHD and its indicators. She also outlines strategies to help children with attention difficulties. Some examples of techniques for assisting students with ADHD include giving simple, clear instructions, offering clear routines and structure, setting clear rules, and giving children time to complete requests. Suggestions are also provided for enhancing social skills and self-esteem of children with ADHD.

Additionally, websites provide readers with researched based information regarding ADHD. Topics range from the effects of caffeine and nutrition to descriptions of diagnostic criteria. Gallagher (2002) also lists useful resources such as books and articles related to the topic of ADHD.

Research Limitations

Almost all of the studies and research articles pertaining to ADHD state the need for further research (Anderson et. al., 2000; Brown, 2000; Grantham, 1999). Much of the information regarding medication is at least two years old and needs to be updated to include more information regarding long term effects. The possibilities of other treatment options, such as neurotherapy and behavior modification, need to be explored and tried by professionals. The quick decision to medicate is an obvious account for the growing number of students on prescription drugs.

Current research is not limited to the United States but appears to be primarily focused on American students. This is probably a direct result of the increasing number of ADHD diagnoses occurring in the U.S.. Research from other countries could lead to a better understanding of causal factors and treatment options not yet discovered by American researchers.

Controversy still exists as to the validity of ADHD as a true disorder. Further brain based research proving the biological existence of ADHD could help communities to better support studies and lead to an increased knowledge about the symptoms and effects of treatment.

Thomas Armstrong advocates extending research to examine what children diagnosed with ADHD can do versus what they can't do. He asks, "where are the studies that tell us what these kids are interested in; what kind of positive learning styles or combinations of intelligences they use successfully in

the classroom; and what sorts of artistic, mechanical, scientific, dramatic, or personal contributions they can make to their schools and communities?" (Armstrong, 1996, p. 2). Since the publication of his article, educational programs and instructional plans have been adapted to answer some of his question. He does, however, pose good thoughts for researchers to continue to explore.

The National Institutes of Health (NIH) identifies areas of research in need of more attention. Looking for a clearer definition of ADHD based on studies of cognitive development and brain imaging is recommended. A closer examination of the dimensional aspects and coexisting conditions in both children and adults with ADHD is also suggested. The institutes mention a need for outlining the impact ADHD has on families as well as the financial costs associated with the diagnosis and treatment of ADHD (NIMH, 1998).

Further research will ultimately lead to increased education of both professionals and educators faced with ADHD on a regular basis. Without more experiments and extensive pursuit of alternative treatment plans, student will continue to be excessively diagnosed and medicated, leading to a slue of possible effects. Neglecting the possibility of other causal factors and drug dependency are just a couple of the potential problems.

Conclusion

As indicated by the review of the literature on ADHD, diagnosis and treatment options vary. Many counselors and therapists use a wide assortment of assessments, which can provide alternate perspectives regarding the severity and causal factors of many children's ADHD diagnosis. There is also a notable degree of controversy surrounding the use of psycho-stimulants on children. While parents and educators seek to find answers to their questions, confusion and frustration may arise. After extensive research a few clear points are consistently made throughout the literature.

Parents, educators, and evaluators need to be well informed about ADHD and its subtypes. They should learn about associated symptoms, recognize the presence of possible comorbid disorders, and ask questions about their concerns.

Qualified professionals should be conducting all diagnosis and the methodologies used should be consistant with current research. Multiple diagnostic methods are available to best assess individuals. An awareness of the potential for biased information from parent or teacher surveys provides clearer interpretations.

Medication is an increasingly common form of treatment that should be handled delicately. Stimulants have shown to be effective but do pose a risk due

to side effects and addictive tendencies. Drugs are not the solution for all children with ADHD. Dosage needs to be monitored regularly and caregivers must be well informed of behavior indicators for reporting purposes.

Alternative treatment programs, support groups, and successful models are in place for parents and children looking for a variety of options to control ADHD symptoms. Researchers seem to agree that a multi-modal approach, combining medical treatments with a psycho-educational approach, is the best choice for most children with ADHD.

Educational institutions with broad perspectives and highly trained staff members are able to provide their students and families with the most beneficial learning environments and resources. Staying alert to behavior patterns associated with ADHD allows teachers and other caregivers to provide interventions that will help children thrive in any situation.

The ultimate goal is for all children, including those diagnosed with ADHD, to develop successful coping strategies so they may better understand lessons, remain involved in activities, and build strong social skills. Therefore, a commitment to finding more precise diagnostic measures and a dedication to further research on medical interventions will help decrease the associated learning and social difficulties of children with ADHD.

Personal experience as a primary teacher has proven that disregarding ADHD as an important issue can be detrimental to the individual student as well as for his or her peers. The classroom environment can often be greatly effected by the energy and excitement exhibited by students with ADHD. When the

energy is embraced positively the effects are advantageous. If medication is not monitored and plans are not set into place, effects on the child, the teacher, and the family can be discouraging. When distraction impedes learning, no one feels successful. Frustration sets in and communication breaks down.

Educators must remember that no matter how tiring a student with ADHD can be, the parents and the child are struggling with the disorder twenty four hours a day, seven days a week. Moderate cases can be handled with excellent classroom interventions and parent education. More severe cases need professional support and treatment plans devised. The more we seek to understand the nature of ADHD, its effects, and possible remedies, the more decisive we can be in diagnosing and treating this rapidly growing disorder.

References

Anderson, Kathryn; Barabasz, Marianne; Barabasz, Arreed; Warner, Dennis. Efficacy of Barabasz's Instant Alert Hypnosis in the Treatment of ADHD with Neurotherapy. Child Study Journal. V30 i1. March 2000.

Ardorin, Scott; Martens, Brian. Testing the Ability of Children with Attention Deficit Hyperactive Disorder to Accurately Report the Effects of Medication On Their Behavior. Journal of Applied Research. v33 no4. Winter 2000.

Armstrong, Thomas. A Holistic Approach to Attention Deficit Disorder. Educational Leadership. V53 no5. February 1996.

Brown, Michael. Diagnosis and Treatment of Children and Adolescents with Attention Deficit Hyperactive Disorder. Journal of Counseling and Development. v78 no2. Spring 2000.

Edwards, Jason H. Evidence-Based Treatment for Child ADHD: "Real-World" Practice Implications. Journal of Mental Health Counseling. V24 no2. April 2002.

Gallagher, Teresa. Born to Explore! The Other Side of ADD. borntoexplore.org. 2002

Grantham, Madeline Kay. Etiology of Attention Disorders: A Neurological/Genetic Perspective. Educational Resources Information Center. 1999.

Hall, Alex S.; Gushee, Arlinn G. Medication Interventions for ADHD Youth: A Primer for School and Mental Health Counselors. Journal of Mental Health Counseling. V24 no 2. April 2002.

Kollins, Scott; Barkely, Russell; DuPaul, George. Use and Management of Medications for Children Diagnosed with Attention Deficit Hyperactive Disorder. Focus on Exceptional Children. V33 no5. January 2001.

Macrine, Sheila; Chapman, Judith. Physicians' Knowledge, Training, and Practices in the Treatment of ADHD. Education Resources Information Center. 2001.

National Institutes of Health. (1998 November 16-18). Diagnosis and Treatment of Attention Deficit Hyperactive Disorder. Consensus Statement Online.; 16(2): 1-37.

Roe, Diana. Young Children with Attention Difficulties – How Can We Help? Educational Resources Information Center. 1998

Tillery, Kim; Katz, Jack; Keller, Warren. Effects of Methylphenidate (Ritalin) on Auditory Performance in Children with Attention and Auditory Processing Disorders. Journal of Speech, Language, and Hearing Research. v43 no4. August 2000.

Yelich, Glenn. An Assessment Protocol for the Evaluation of Attention Deficit Hyperactive Disorder in the School Setting. Educational Resources Information Center. 2001

U.S. Department of Education
Office of Educational Research and Improvement
(OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

ERIC Educational Resources Information Center

Reproduction Release

(Specific Document)

I. DOCUMENT IDENTIFICATION:

Title: Attention Deficit Hyperactive Disorder: Alternative Treatment Plans for School Age Children Diagnosed w/ ADHD	
Author(s): Claudia L. Carbonell	
Corporate Source: Dominican University of California	Publication Date: 5/2003

II. REPRODUCTION RELEASE:

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, Resources in Education (RIE), are usually made available to users in microfiche, reproduced paper copy, and electronic media, and sold through the ERIC Document Reproduction Service (EDRS). Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce and disseminate the identified document, please CHECK ONE of the following three options and sign in the indicated space following.

The sample sticker shown below will be affixed to all Level 1 documents	The sample sticker shown below will be affixed to all Level 2A documents	The sample sticker shown below will be affixed to all Level 2B documents
PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY SAMPLE TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)	PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE, AND IN ELECTRONIC MEDIA FOR ERIC COLLECTION SUBSCRIBERS ONLY, HAS BEEN GRANTED BY SAMPLE TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)	PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY SAMPLE TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
Level 1	**Level 2A**	**Level 2B**
☑	☐	☐
Check here for Level 1 release, permitting reproduction and dissemination in microfiche or other ERIC archival media (e.g. electronic) *and* paper copy.	Check here for Level 2A release, permitting reproduction and dissemination in microfiche and in electronic media for ERIC archival collection subscribers only	Check here for Level 2B release, permitting reproductic and dissemination in microfiche only
Documents will be processed as indicated provided reproduction quality permits. If permission to reproduce is granted, but no box is checked, documents will be processed at Level 1.		

I hereby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce and disseminate this document as indicated above. Reproduction from the ERIC microfiche, or electronic media by persons other than ERIC employees and its system contractors requires permission from the copyright holder. Exception is made for non-profit reproduction by libraries and other service agencies to satisfy information needs of educators in response to discrete inquiries.

Signature: C. L. Carbonell	Printed Name/Position/Title: Claudia L. Carbonell / Teacher
Organization/Address: C. Carbonell 2762 Filbert St. San Francisco, CA 94123	Telephone: 415 474-7667 / Fax:
	E-mail Address: clcarbonell@earthlink.net / Date: 5/7/03

III. DOCUMENT AVAILABILITY INFORMATION (FROM NON-ERIC SOURCE):

If permission to reproduce is not granted to ERIC, or, if you wish ERIC to cite the availability of the document from another source, please provide the following information regarding the availability of the document. (ERIC will not announce a document unless it is publicly available, and a dependable source can be specified. Contributors should also be aware that ERIC selection criteria are significantly more stringent for documents that cannot be made available through EDRS.)

Publisher/Distributor:
Address:
Price:

IV. REFERRAL OF ERIC TO COPYRIGHT/REPRODUCTION RIGHTS HOLDER:

If the right to grant this reproduction release is held by someone other than the addressee, please provide the appropriate name and address:

Name:
Address:

V. WHERE TO SEND THIS FORM:

Send this form to the following ERIC Clearinghouse:

However, if solicited by the ERIC Facility, or if making an unsolicited contribution to ERIC, return this form (and the document being contributed) to:

ERIC Processing and Reference Facility
4483-A Forbes Boulevard
Lanham, Maryland 20706
Telephone: 301-552-4200
Toll Free: 800-799-3742
e-mail: ericfac@inet.ed.gov
WWW: http://ericfacility.org

EFF-088 (Rev. 2/2001)